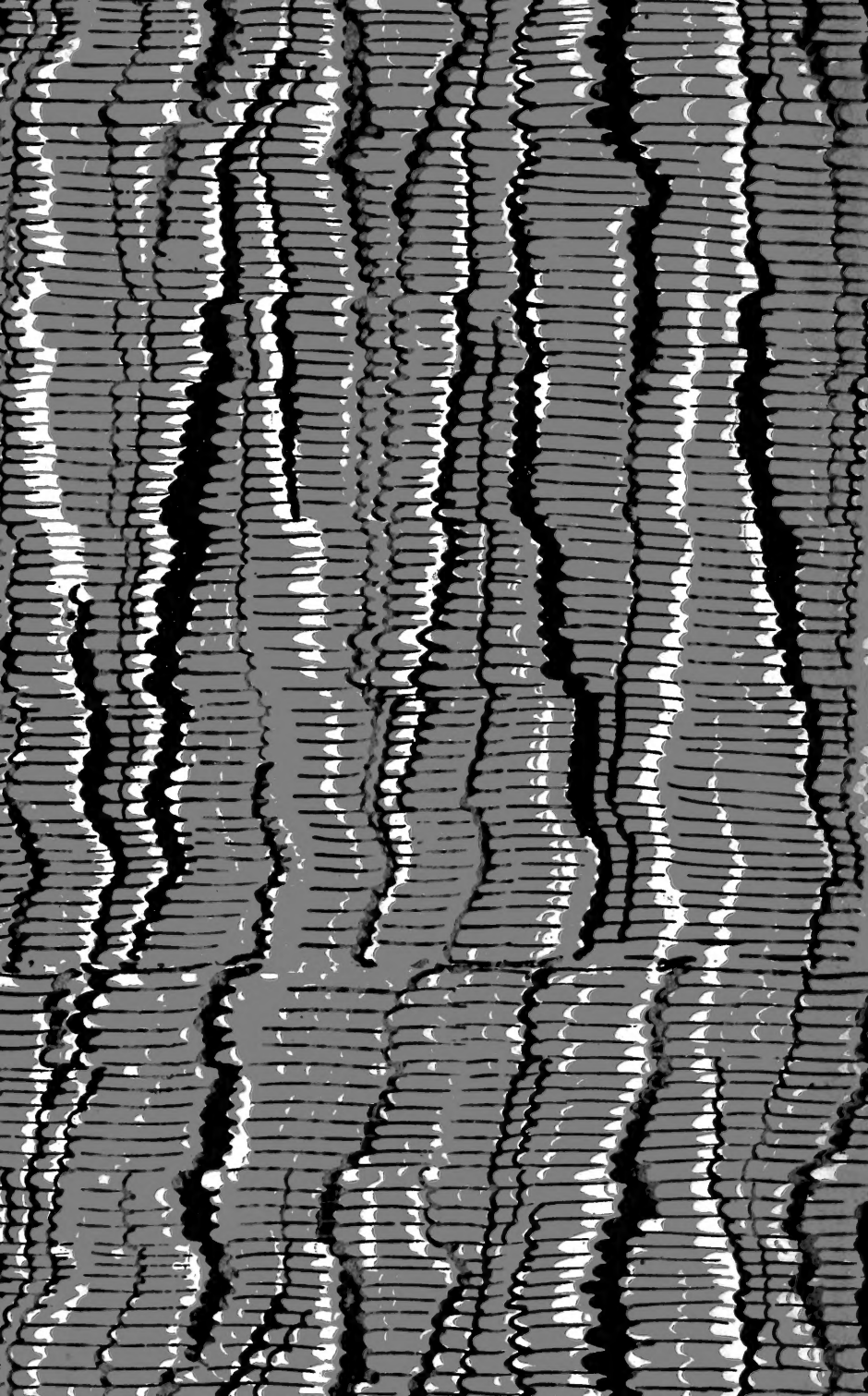


From the Annals and Magazine of Natural History,
Ser. 8, Vol. v., *January* 1910.

Notes on Crustacea found in the Gizzard of a Deep-sea Cephalopod. By Thomas Scott, LL.D., F.L.S.

[Plates II. & III.]

Dr. W. E. Hoyle, the well-known authority on the Cephalopoda, when examining one of these organisms captured in deep water in the South Atlantic, discovered in its gizzard a number of fragments and one or two moderately whole specimens of small crustaceans, on which apparently the creature had been feeding some time before it was captured. The crustacean remains comprised several species, and included representatives of the Isopoda, the Amphipoda, and the Copepoda. Very few of them, however, were sufficiently perfect for identification, and one of these is a rather interesting species belonging to the Copepoda.

I am indebted to the Rev. T. R. R. Stebbing for the privilege of overhauling this somewhat curious collection, and also to my son Mr. Andrew Scott for the drawings which illustrate this paper and for assistance otherwise.

I have on several occasions found interesting Crustacea, not only minute Copepods, but tolerably big crabs, such as *Hyas*, *Pagurus*, *Geryon triden*, and full-grown Norway lobsters, in the stomachs of fishes, and in one case no fewer than fifty-four pairs of cuttlefish jaws were obtained in the stomach of a king-fish, *Lampris luna**, but I think this is the first time I have had the opportunity of examining a carcinological collection obtained in the stomach of a Cephalopod.

The Cephalopod referred to—*Stauroteuthis hippocrepium*, Hoyle †, was captured at a depth of 2425 fathoms in lat.

* See Twenty-first Report Fishery Board for Scotland, pt. iii. p. 219 (with a photograph of the jaws).

† See Bull. Mus. Comp. Zool. vol. xlii. no. 1, pp. 1–77 (with 12 plates).

66° 40′ S., long. 40° 35′ W., on March 10th, 1908. The contents of the gizzard of this Cephalopod, as stated above, consisted for the most part of fragments representing different species of Crustacea. Those belonging to the Isopoda and the Amphipoda have been examined by the Rev. Mr. Stebbing; he has sent me the following notes on the various forms, and has kindly permitted me to incorporate his notes here. I gladly avail myself of this permission, for the information they give appears to include all that can be satisfactorily made out concerning these forms. His notes are as follow:—

1. *The Isopoda.*

(1) "Fragments of a very spiny specimen which has uropods like those of Beddard's *Trichopleon ramulosum*, peduncle long, rami long, inner ramus with short second joint, telson produced to a rather long point. Beddard's *Eurycope spinosa* was without pleon, and therefore remains indefinite." *Trichopleon ramulosum*, Beddard, was described from specimens from the Philippines.

(2) "Another species may belong to *Ilyarachna*, Sars, or perhaps rather to *Echinozone*, Sars."

(3) "A small nearly perfect specimen seems near to *Nannoniscus*, Sars. The masculine appendage of the second pleopods ends in a broad oval expansion. The operculum is not abnormal as in *N. oblongus*, Sars, but is as in his Caspian species *N. caspius*."

2. *The Amphipoda.*

(4) "An Amphipod wanting the pleon." Neither the genus nor species of this could be satisfactorily determined.

(5) "Another Amphipod without the pleon, this being *Andaniotes corpulentus* (G. M. Thomson)." *Andaniotes corpulentus* was described from specimens collected in the South Pacific.

3. *The Copepoda.*

The Copepoda comprised an *Oithona* rather immature and scarcely perfect enough to be determined; a male *Euterpe acutifrons*; another form too imperfect for identification; and one or two tolerably perfect specimens of *Pontostratiotes abyssicola*, G. S. Brady. The following short description of the *Pontostratiotes* is culled from that by

Dr. Brady in his Report on the Copepoda of the 'Challenger' Expedition, supplemented by a careful examination of the specimens from the stomach of the *Stauroteuthis*.

Family **Pontostratiotidæ**, A. Scott *.

Genus PONTOSTRATIOTES, G. S. Brady.

Pontostratiotes abyssicola, G. S. Brady.
(Pls. II. & III.)

1883. *Pontostratiotes abyssicola*, Brady, Report on the Scientific Results of the Voyage of H.M.S. 'Challenger,' Zool. vol. viii. p. 105, pl. xliv.

Description.—Anterior antennæ tolerably elongate, slender, and composed of eight joints; the first three are moderately elongated, but the second and third are each rather shorter than the joint that precedes it; the upper distal angle of the second joint is produced into a strong forwardly-projecting tooth; the remaining joints are small, but the fourth from the end is rather longer than the others. Posterior antennæ slender, two-branched; inner ramus elongated, outer short and four-jointed. Mandibles stout, armed with strong teeth and provided with a large two-branched palp. Maxillæ stout and furnished with several spiniform marginal bristles and long, rather slender setæ. First maxillipeds moderately elongate, stout, and bearing several setiferous processes on the inner aspect. Second maxillipeds smaller and composed of four joints, first joint considerably longer than the combined lengths of the other three, end-joints small, no terminal claw.

The first four pairs of thoracic legs with both rami three-jointed, outer and inner rami of about equal length; both rami of the first pair rather shorter than in the other three pairs, and an elongated spiniform seta springs from the inner angle of the second basal joint, and extends to near the end of the inner ramus.

The fifth pair consist each of a single, elongated, narrow, two-jointed branch, end-joint about five times longer than broad and provided with several long spiniform marginal and terminal setæ. Caudal rami, which are somewhat abnormal and resemble those of *Ægisthus*, Giesbrecht, are extremely long and slender and close together, and assume a setiform appearance.

The carapace is armed with several long and strong toothed spines, which are directed backwards.

* This family was instituted for *Pontostratiotes* and the nearly related genus *Ægisthus*, Giesbrecht: see Report on the Copepoda of the 'Siboga' Exped., by A. Scott, p. 232 (1909).

Length of the specimens scarcely 2 mm.

Pontostratiotes (the sea-soldier) appears to be a true bottom form; it was discovered by Dr. Brady amongst some mud brought up from a depth of over 2000 fathoms. Dr. Brady, in his remarks on this Harpactid, says:—"This wonderful species was found—but unfortunately one specimen only, and that in a dried state—amongst material taken in the tow-net at a depth of 2200 fathoms in lat. 37° 29′ S., long. 27° 31′ W. This single specimen was apparently much shrunk and distorted, owing to its having been dried amongst the mud in which it was taken, and on this account many of the details of structure have been very imperfectly made out. The tail-setæ, for instance, and the minor details of the mouth-organs were partly indistinguishable, the limbs much matted together, and the natural contours doubtless in other parts much altered." Notwithstanding that Dr. Brady had only one specimen, and that not in the best condition, his description is remarkably full and in accord with the specimens from the gizzard of the *Stauroteuthis*, and it is only because these specimens enable me, with my son's assistance, to supply some missing parts that I have ventured to supplement Dr. Brady's excellent description.

This curious species does not appear to have been met with since Dr. Brady's discovery of it in the 'Challenger' collections till now, and it is owing to Dr. Hoyle's interest in other departments of natural history besides his own that we are indebted for the opportunity of examining these specimens from a widely different locality from that where the species was first discovered.

EXPLANATION OF THE PLATES.

Plate II.

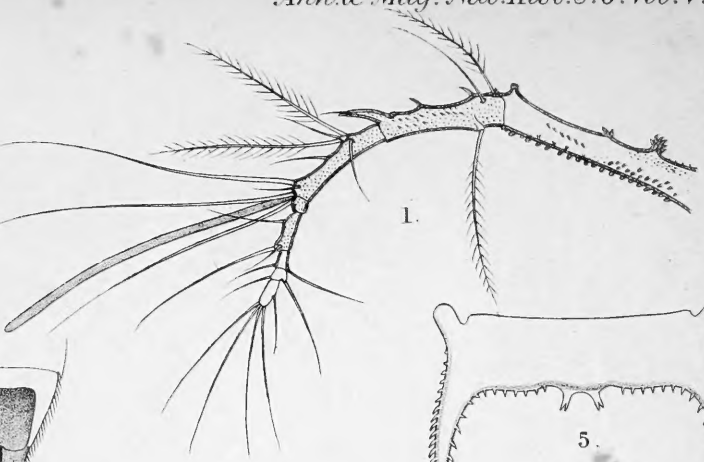
Pontostratiotes abyssicola, Brady, ♀.

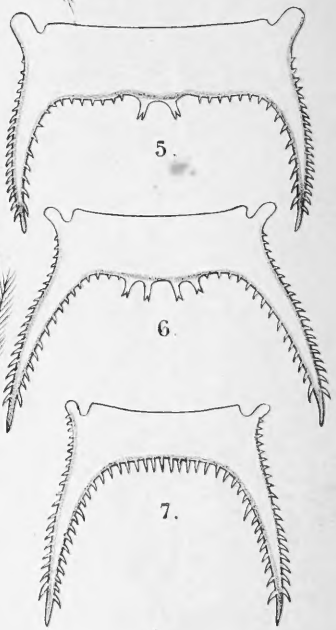
Fig. 1. Antennule, × 50. 2. Second maxilliped, × 102. 3. Foot of first pair of thoracic legs, × 76. 4. Foot of second pair, × 72. 5. Second thoracic segment, × 50. 6. Third thoracic segment, × 50. 7. Fourth thoracic segment, × 50. 8. Caudal rami, × 72.

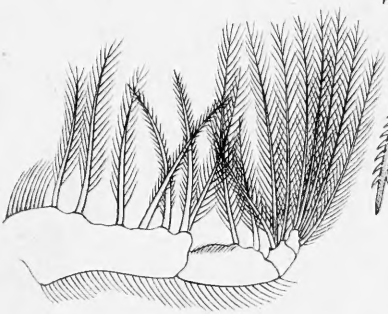
Plate III.

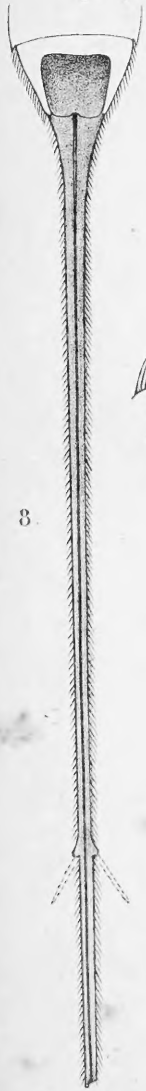
Pontostratiotes abyssicola, Brady, ♀.

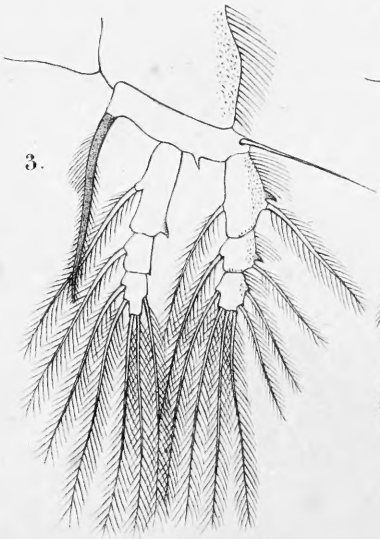
Fig. 1. Antenna, × 38. 2. Mandible and palp, × 103. 3. Maxilla, × 103. 4. Second maxilliped, × 103. 5. Foot of third pair of thoracic legs, × 72. 6. Foot of fourth pair, × 72. 7. Foot of fifth pair, × 103.

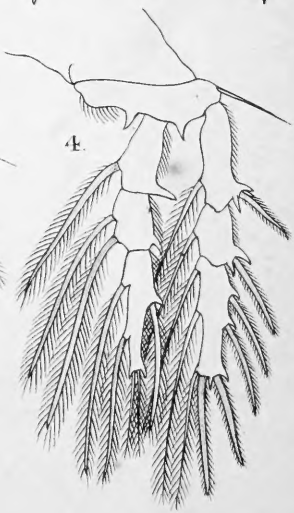






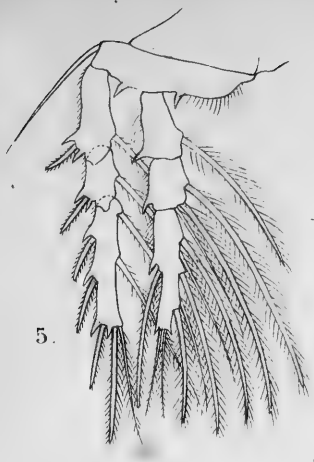






A. Scott del.

J. Green lith.



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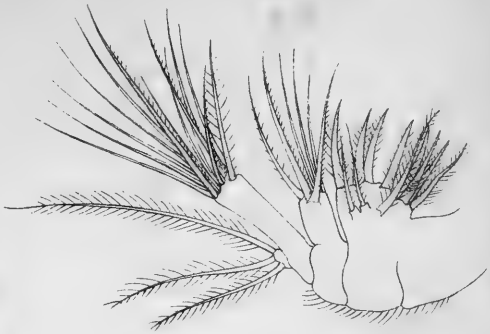

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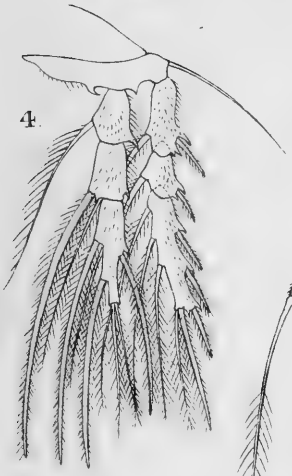

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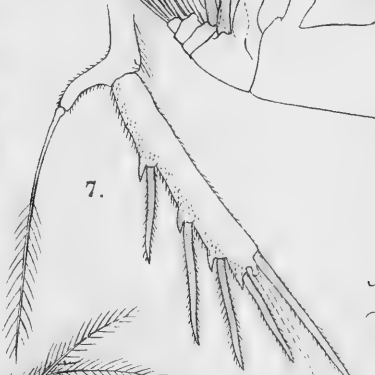

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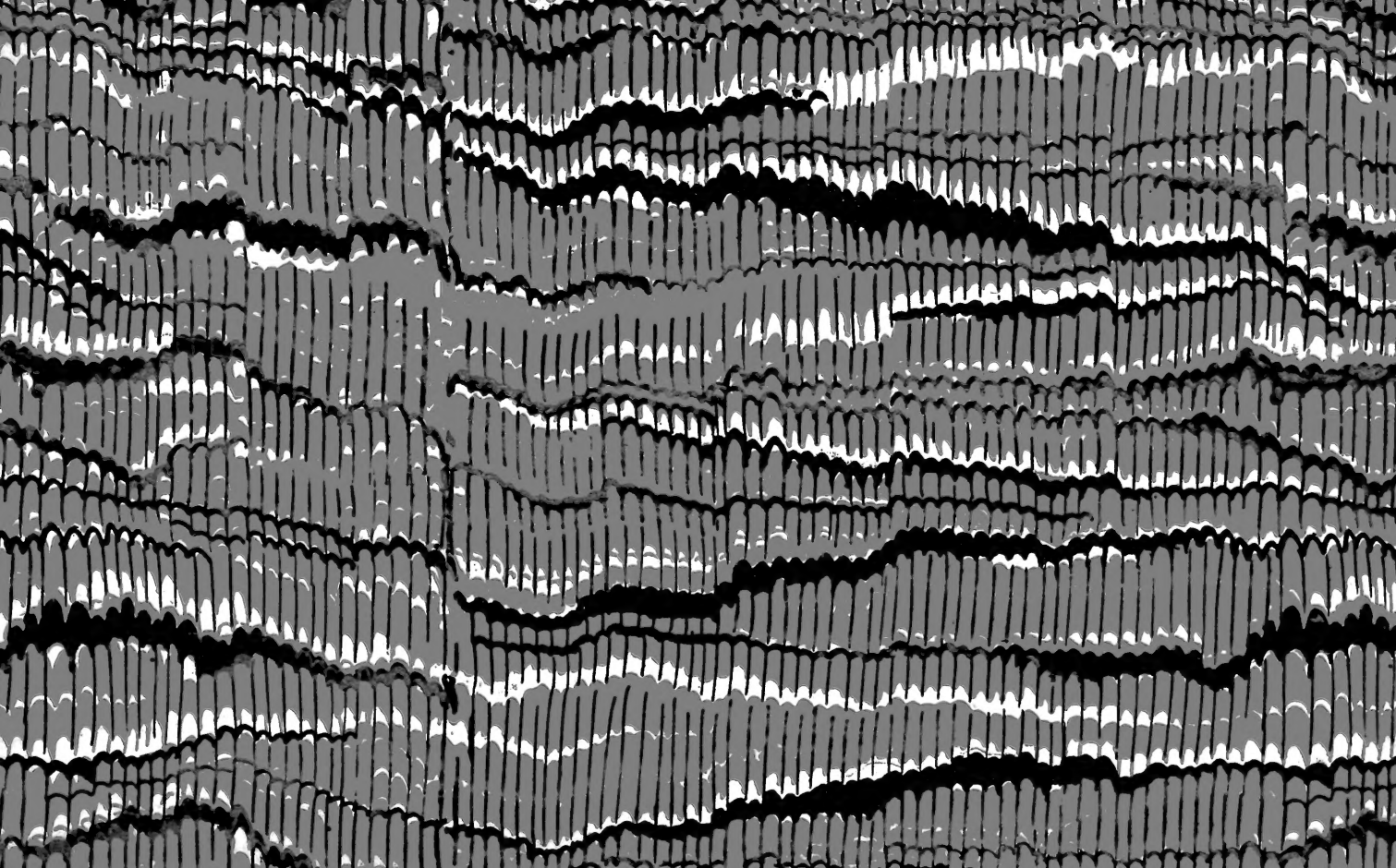

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